IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

In re Application of:

OK-HYUN SON

Serial No.:	09/971,081	Examiner:	WONG, KIN C
Filed:	5 October 2001	Art Unit:	2627

For: METHOD FOR FORMING AND PROCESSING DATA ADDRESS MARK FOR HARD DISK DRIVE

INFORMATION DISCLOSURE STATEMENT

Commissioner for Patents
P.O. Box 1450
Alexandria, VA 22313-1450

Sir:

In accordance with 37 C.F.R. §1.56, and §§1.97 and 1.98 as amended, Applicant cites, describes, and provides copies of the following art references. Under 37 C.F.R. §1.98(a)(2)(iii) however, copies of the U.S. patent reference(s) cited below are not provided.

U.S. PATENT REFERENCE(S):

- U.S. Patent No. 4,791,622 to Clay *et al.*, entitled *OPTICAL DATA FORMAT EMPLOYING RESYNCHRONIZABLE DATA SECTORS*, issued on 13 December 1988;
- U.S. Patent No. 4,081,844 to Devore *et al.*, entitled *INTERLEAVED SYNCH AND BEGINNING OF DATA INDICATORS*, issued on 28 March 1978;

Folio: P54757RE2
Date: 10/2/07
I.D.: REB/ny/kf

- U.S. Patent No. 5,793,548 to Zook, entitled *FAULT TOLERANT SYNCH MARK DETECTOR FOR COMPARING A SIGN AND MAGNITUDE OF A DETECTED SEQUENCE TO A TARGET SYNC MARK IN SAMPLED AMPLITUDE MAGNETIC RECORDING*, issued on 11 August 1998; and
- U.S. Patent No. 5,796,690 to Kanno, entitled *DISC CONTROLLER WITH IMPROVED DATA SYNC AND RE-SYNC MARK DETECTION*, issued on 18 August 1998.

FOREIGN PATENT REFERENCE(S):

- Japanese Patent Publication No. H4-26959 to Tanaka, entitled *SYNCHRONIZING INFORMATION RECORDING AND REPRODUCING DEVICE*, published on 30 January 1992 (complete English language translation attached); and
- Japanese Patent Publication No. H5-159465 to Kuwano *et al.*, entitled *FLOPPY DISK DEVICE*, published on 25 June 1993 (complete English language translation attached).

DISCUSSION

Clay *et al.* '622 discloses that an optical disk drive system with which data may be permanently and correctly stored on removable media. The system includes a drive into which the media, a disk housed in a cartridge, may be removably inserted. The drive interfaces with a host CPU through a storage control unit, which storage control unit may also have other peripheral devices, such as magnetic disk drives, coupled therethrough to the host CPU. A special data format is used for data stored on the disk in order to provide efficient use of and access to the available storage space. The disk is divided into data bands, each data band having a prescribed number of concentric data tracks therein. Each data track is divided into equal length sectors. The data is organized into

data blocks, each block being made up of a selected sequence of prescribed data sections. Many of the data sections commence with synchronization bits followed by the data to be stored. The data of each data section is adapted to fit within each data sector on the disk. When data is written in any given sector, it is immediately checked for correctness by reading the data that has been written and comparing it with the data that was to have been written. Defectively written data is flagged so that it can be skipped over and ignored during subsequent reads. Data in a given sector is rewritten until it is written correctly.

Devore *et al.* '844 discloses that each data record portion on a record member includes preamble signals for synchronizing recording apparatus with respect to data signals recorded in juxtaposition to the preamble signals. A plurality of beginning of data indicators are interleaved in the synchronizing signals for providing a plurality of independent but coacting beginning of data location pointers. Enhanced apparatus includes means responsive to any one of the location pointers to ensure a reliable start of data indication.

Gold '545 discloses that a method is provided for decoding a unique data sequence forming an address mark within a stream of RLL coded data values in order to start a byte clock for synchronizing operations within a data sequencer of a data storage system. The unique data sequence nominally comprises at least two adjacent sequences of zeros of a maximum permitted length occurring between three flux transitions under a predetermined RLL data code. This new method comprises the steps of: detecting a first flux transition, detecting a second flux transition, determining the number of zeros of a first zero sequence from the first flux transition to the second flux transitions, determining if the accumulated number of zeros of the first zero sequence is equal to the maximum permitted length, plus or minus one zero, and if so, detecting the third flux transition, determining the number of zeros of a second zero sequence from the second flux transition to a third flux transition, summing the numbers of zeros of the first and second sequences, determining if the sum is of the maximum permitted length, plus or minus one zero, and if so,

starting the byte clock in relation to the determined first and second sequences and in relation to the time of detection of the third flux transition.

Zook '548 discloses that a sampled amplitude read channel reads data from a magnetic medium by detecting digital data from a sequence of discrete time sample values generated by sampling pulses in an analog read signal from a read head positioned over the magnetic medium. The digital data comprises a preamble field followed by a sync mark followed by a data field. Timing recovery in the read channel synchronizes to a phase and frequency of the preamble field and a sync detector detects the sync mark in order to frame operation of an RLL decoder for decoding the detected data field. To decrease the probability of early misdetection, the sync mark is chosen to have minimum correlation with shifted versions of the sync mark concatenated with the preamble field. To further increase the fault tolerance, the sync mark detector is enabled by timing recovery relative to the end of the preamble field. A timing recovery state machine generates expected sample values used to acquire the preamble field, and a current state of the state machine indicates when the preamble ends relative to a predetermined clock interval. As a result, the search for an appropriate sync mark need only look for minimum correlation during shifts at the predetermined clock interval, thereby increasing the fault tolerant characteristic of the sync mark. In one embodiment, both the sign and magnitude of the data are used in the correlation to further increase the fault tolerance.

Kanno '690 discloses that in response to a supply of sync and re-sync mark detection failure status signals for data to be written or read, a re-sync mark detection window expanding device advances a timing of opening a re-sync mark detection window to be earlier than an instant of generation of the sync or re-sync detection success status signal, thereby improving the possibility of detection of the next re-sync mark.

Tanaka JP'959 discloses that each data part 15 is provided on the side of its end part with a preamble VFO SYNC 1, and two synchronizing patterns SYNC-A 2 and SYNC-B 3 for showing the lead of a recorded data DATA 4 are provided between this VFO SYNC 1 and the recorded data DATA 4. Moreover, a particular pattern 6 which is different from the SYNC-A 2 and the SYNC-B 3, having a length, for instance, a half size (length) of the SYNC-A 2 is provided between the synchronizing patterns SYNC-A 2 and the SYNC-B 3. By this method, even when a defect exists between the two adjacent synchronizing patterns, the synchronizing information can surely be detected.

Kuwano *et al.* JP'465 discloses that clock synchronizing signals syncl, 15, 17 and demodulation starting position signals DAM2, 16 and 18 are recorded alternately and every plural pieces respectively in a sector format. The clock synchronism is established by any one of the clock synchronizing signals sync and by detecting any one of the demodulation starting position signals DAM placing after the signal sync, a timing operating a demodulation circuit is decided.

The citation of the foregoing references is not intended to constitute an assertion that other or more relevant art does not exist. Accordingly, the Examiner is requested to make a wide-ranging and thorough search of the relevant art.

Pursuant to 37 C.F.R. §1.97(c)(2), the fee set forth under 37 C.F.R.§1.17(p) of $180.00 accompanies this Information Disclosure Statement. Should the check become lost, be deficient in payment, or should other fees be incurred, the Commissioner is authorized to charge Deposit Account No. 02-4943 of Applicant's undersigned attorney in the amount of such fees.

Respectfully submitted,

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Approved for use through 9/30/2000. OMB 0651-0032
Patent and Trademark Office: U.S. DEPARTMENT OF COMMERCE

FEE TRANSMITTAL

Effective 30 September 2007
Patent fees are subject to annual revision.

Complete if Known	
Application Number	09/971081
Filing Date	5 October 2001
First Named Inventor	Ok-Hyun SON
Examiner Name	Kin C. WONG
Group/Art Unit	2627
Attorney Docket No.	P54757RE2

TOTAL AMOUNT OF PAYMENT	($) 180.00

METHOD OF PAYMENT (check one)

1. ■ **Payment Enclosed: (CHECK #53156)**

■ Check ❑ Credit Card ❑ Money Order ❑ Other

❑ Charge Any Additional Fee Required Under 37 C.F.R. §1.16 and 1.17.

❑ Applicant claims small entity status. See 37 CFR 1.27

2. ■ The Commissioner is hereby authorized to charge any deficiency and credit any over payments to:

Deposit Account Number: 02-4943

FEE CALCULATION

Fee Code	Fee ($)	Fee Code	Fee ($)	Fee Description	Fee Paid
				EXTENSION OF TIME FEES	
1251	120	2251	60	Extension for reply within first month	$
1252	460	2252	230	Extension for reply within second month	$
1253	1050	2253	525	Extension for reply within third month	$
1254	1640	2254	820	Extension for reply within fourth month	$
1255	2230	2255	1115	Extension for reply within fifth month	$
				APPEAL	
1401	510	2401	255	Notice of Appeal	$
1402	510	2402	255	Filing a brief in support of an appeal	$
1403	1030	2403	515	Request for oral hearing	$
				CLAIMS	
1201	210	2201	105	Independent claims in excess of 3	$
1202	50	2202	25	claims in excess of 20	$
				Other Fee (specify) _____	$
				Other Fee (specify) _____	$
				Other Fee (specify) _____	$

FEE CALCULATION

Fee Code	Fee ($)	Fee Code	Fee ($)	Fee Description	Fee Paid
				MISCELLANEOUS	
1801	$810	2801	$405	Request for continued examination (RCE)	$
1806	$180			Submission of an IDS	$180.00
1814	$130	2814	$65	Statutory disclaimer	$
8021	$40			Recordation of assignment per property	$
				TRADEMARK	
6001/7001			$375	Application for registration, per class (paper)	$
6002/7002			$100	Amendment to Allege Use, per class	$
6003/7003			$100	Statement of Use, per class	$
6004/7004			$150	Request for six-month extension of time, per class	$
6205/7205			$100	§8 affidavit, per class	$
6208/7208			$200	§15 affidavit, per class	$
6201/7201			$400	Application for renewal, per class	$
6403/7403			$100	Ex parte appeal, per class	$
				PETITION	
1462			$400	Petitions to Director (Group I)	$
1463			$200	Petitions to Director (Group II)	$
1464			$130	Petitions to Director (Group III)	$
1452	$510	2452	$255	Petitions to revive unavoidably abandoned application	$
1453	$1540	2453	$770	Petitions to revive unintentionally abandoned application	$
				PATENT MAINTENANCE	
1551	$930	2551	$465	Due at 3.5 years	$
1552	$2360	2552	$1180	Due at 7.5 years	$
1553	$3910	2553	$1955	Due at 11.5 years	$
				Other Fee (specify) _____	$
				Other Fee (specify) _____	$
				Other Fee (specify) _____	$

SUBTOTAL: LEFT COLUMN	$0.00	SUBTOTAL: RIGHT COLUMN	$180.00

SUBMITTED BY

Typed or Printed Name	Robert E. Bushnell, Esq.			Reg. Number	27,774
Signature	/Robert E. Bushnell/	Date	2 October 2007	Deposit Account User ID	

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